

REMARKS/ARGUMENTS

Claims 1-3 and 8-13 are active. Claims 4-7 have been withdrawn from consideration. Claim 1 has been revised to include the phrase “to which indium is not added”, support for which is found in the specification at the bottom of page 5. Corrosion test results for indium-containing zinc alloys are also disclosed on page 15 [0023]. Support in the original claims and specification for claims 8-13 is as follows: claim 8 (claim 1, pages 5, 15, and 19 [0030]; page 28, Example A), claim 9 (page 6, subsection (5) and page 16 [0025]), claim 10 (page 13 [0018], page 28 [0048], and claim 2), claim 11 (page 14 [0021]), claim 12 (pages 14-15 [0022]) and claim 13 (claim 1). No new matter is believed to have been added. Favorable consideration of this amendment and allowance of this case are respectfully requested.

Restriction/Lack of Unity/Election

The Applicants previously elected with traverse **Group I**, claims 1-3, directed to a method for making a battery. Claims 4-7, drawn to a battery, have been withdrawn from consideration. The requirement has been made FINAL. The Applicants respectfully request that the claims of the nonelected group(s) or other withdrawn subject matter which depend from or otherwise include all the limitations of an allowed elected claim, be rejoined upon an indication of allowability for the elected claim, see MPEP 821.04.

Rejection—35 U.S.C. §103(a)

Claims 1-3 were rejected under 35 U.S.C. §103(a) as being unpatentable over Batey, WO 00/77868, in view of Hakata, et al., JP 07-094193 and Kejha, et al., U.S. 2004/0018425.

Batey cannot render the invention obvious because it does not suggest a zinc anode material for forming a battery can as opposed to one useful for making a foil. Batey involves production of a less brittle foil that to be of practical use must be “capable of being bent or flexed through a small bend radius” (page 2, lines 26-27). However, Batey is silent about the properties of an anodic zinc alloy useful for making battery cans, such as those produced by extruding, punching and deep drawing, a process placing a large amount of strain or stress on the alloy. There was no reasonable expectation of success in Batey for an alloy having anti-cracking and anti-corrosion properties for making a battery can, especially by punching or deep drawing or for an anodic alloy not containing indium.

Other the other hand, the inventors have found that when In was added, low corrosion resistance resulted, see page 15 [0023].

Whereas corrosion test by the conventional method for addition of indium to anode material by 0.1 percent by mass showed a level of corrosion resistance equivalent to that of the material with lead additive, a test this in invention, a practical and convenient method using a publicly available standard impurity additive, revealed a corrosion amount with the same material (indium 0.1 percent by mass) approximately 5 times as much as 21 mg/10cm²) with the material containing lead. The result meant a battery using the material indium 0.1 percent by mass added might involve practical problems, and in fact the battery made out with this material disclosed short battery life hardly useable, through evaluation test by repetition of discharge and halt. A preferable average crystal grain diameter of foregoing anode active material is less than or equal to 20 μm . An average crystal grain diameter more than or equal to 20 μm acts to lower corrosion resistance against electrolyte and increase corrosion amount to wear the can wall quickly. (emphasis added).

The two secondary references Hikata (English abstract) were applied to teach that “forming the negative electrode into an electrode can” is conventional (OA, page 3, lines 7-8) and that zinc alloys containing bismuth as well as alkaline earth metals (Mg, Ca, Sr or Ba) may be worked up at 180°C to 220°C to decrease cracking or chipping (OA, page 3, lines 11-12). However, Hikata does not disclose the zinc alloy of the invention, such as one consisting of crystals from 8 to 25 μm of average grain diameter, an alloy which consists

essentially of zinc and bismuth, or provide a reasonable expectation of success for use of such a zinc alloy for making a battery can with superior physical properties such as those shown in the comparative experimental data of record.

Kejha was relied upon for teaching the process of extruding and deep-drawing (OA, page 3, lines 14, *ff.*), but does not disclose the other aspects of the invention.

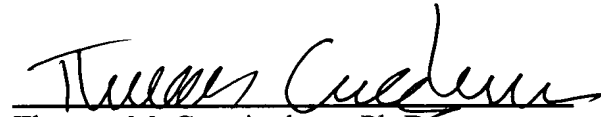
None of these references suggested or provided a reasonable expectation of success for a method of making a zinc can using the alloy of the invention that includes no added indium and which has the physical properties required by claim 1. Accordingly, this rejection cannot be sustained.

Conclusion

In view of the amendments and remarks above, the Applicants respectfully submit that this application is now in condition for allowance. An early notice to that effect is earnestly solicited.

Respectfully submitted,

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